



June 01, 2010

Fermilab Fire Department
Ms. Anna Pla-Dalmau
M S 302
PO Box 500
Batavia, IL 60510
USA

Our Reference: FS665200/10CA19519

Subject: Report Of Surface Burning Characteristics Tests On Samples As
Submitted By Fermilab Fire Department

Dear Ms. Pla-Dalmau:

This is a Report summarizing the results of a test conducted under the Commercial Inspection and Testing Services (CITS) program identified as Assignment No. 10CA19519.

GENERAL:

The results relate only to items tested.

METHOD:

Each test was conducted in accordance with Standard ANSI/UL723, Tenth Edition, dated September 10, 2008, "Test for Surface Burning Characteristics of Building Materials", (ASTM E84-08).

The test determines the Surface Burning Characteristics of the material, specifically the flame spread and smoke developed indices when exposed to fire.

The maximum distance the flame travels along the length of the sample from the end of the igniting flame is determined by observation. The Flame Spread Index of the material is derived by plotting the progression of the flame front on a time-distance basis, ignoring any flame front recession, and using the equations described below:

- A. $CFS = 0.515 A_T$ when A_T is less than or equal to 97.5 minute-foot.
- B. $CFS = 4900/(195-A_T)$ when A_T is greater than 97.5 minute-foot.

Where A_T = total area under the time distance curve expressed in minute-foot.

The Smoke Developed Index (SDI) is determined by rounding the Calculated Smoke Developed (CSD) as described in UL 723. The CSD is determined by the output of photoelectric equipment operating across the furnace flue pipe. A curve is developed by plotting the values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for the material tested as a percentage of the area under the curve for untreated red oak.

The CSD is expressed as:

$$\text{CSD} = (A_m/A_{ro}) \times 100$$

Where:

CSD = Calculated Smoke Developed

A_m = the area under the curve for the test material.

A_{ro} = the area under the curve for untreated red oak.

SAMPLES:

The samples utilized in this investigation were neither prepared nor selected by a Laboratories' representative such that no verification of composition can be provided.

Sample Description	
Test No.	System
1	Nova Panel

Due to the rigidity of the test samples, supplementary means of support was not required.

RESULTS:

The results are tabulated below are considered applicable only to the specific samples tested.

Data sheets and graphical plots of flame travel versus time and smoke developed versus time are also enclosed.

Table 1: Test Summary

Test No.	Test Code	Sample Description	CFS Calculated Flame Spread	FSI Flame Spread Index	CSD Calculated Smoke Developed	SDI Smoke Developed Index
1	05281014	Nova Panel	11.00	10	1113.1	Over 500

The Classification Marking of Underwriters Laboratories Inc. on the product is the only method provided by Underwriters Laboratories Inc. to identify products which have been produced under its Classification and Follow-Up Service. No use of a Classification Marking has been authorized as a result of this investigation.

Since the anticipated work has been completed, we have instructed our Accounting Department to terminate the investigation and invoice you for the charges incurred to date.

Should you have any questions, please contact the undersigned.

Very truly yours



Jamila Shawon (ext. 42607)
Project Engineer
Fire Protection Division

Reviewed by:



James Smith (ext. 42666)
Staff Engineering Associate
Fire Protection Division

Underwriters Laboratories Inc.

Project: 10CA19519
Tested by: KNIGHTON

File: FS665200
Engineer: SHAWON

Test Code: 05281014
Date: 2010/28/05

TEST METHOD: The test was conducted in accordance with UL 723 Tenth Edition

Client Name: Fermilab Fire Department

Test Duration 10 Minutes

Test No.: 1

Hot Test: No

Mounting: Self

Test Type: CITS

Burn-Out Required: No

Test Sample: Nova Panel

FLAME SPREAD RESULTS

Flame Spread Data

Distance (Feet)		Time (Sec)		Distance (Feet)		Time (Sec)
Ignition		40		4		548
0.5		92		5		558
1		102		6		564
1.5		110		7		576
2		158		8		580
3		524				

Calculated Flame Spread (CFS):

11.00

Flame Spread Index (FSI):

10

Time to Ignition (sec):

40

Maximum Flame Spread (ft):

8.0

Area Under the Flame Spread Curve (ft.-min):

21.4

SMOKE RESULTS

Calculated Smoke Developed (CSD):

1113.1

Smoke Developed Index (SDI):

Over 500

Area Under the Smoke Curve (sq. in.):

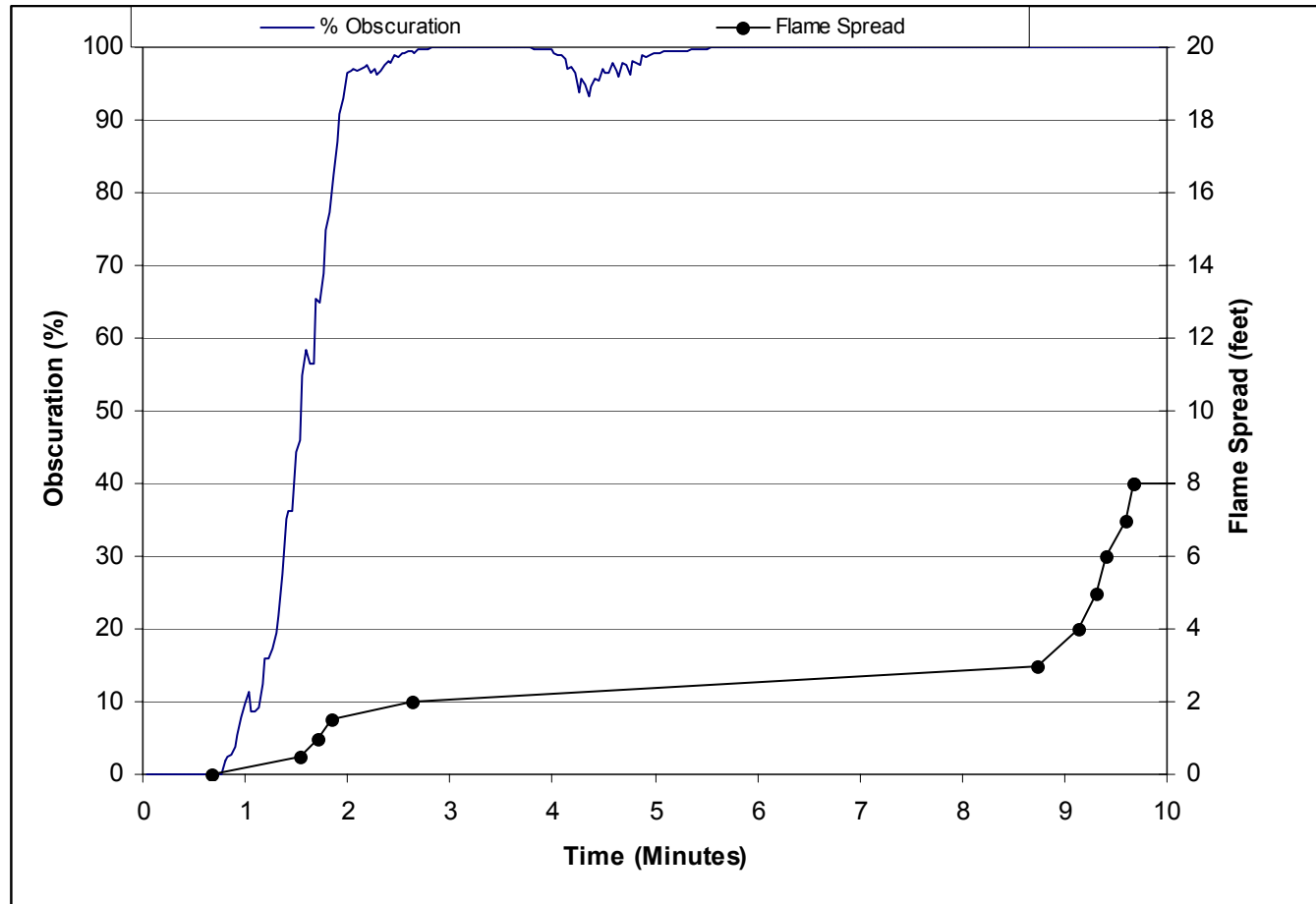
844.47

Area Under Red Oak Curve (sq. in.):

75.87

Flame Spread / Smoke Results

Fermilab Fire Department
Nova Panel



Test No. 1
10CA19519 / FS665200
05281014

Flame Spread Index: 10
Smoke Developed Index: Over 500
Max. Flame Spread: 8.0